CLAIMS

1. A power amplifying apparatus, comprising:

a distributing unit that divides an input digital signal to a plurality of the input digital signals so as to distribute the input digital signals to a plurality of devices respectively; and

a synthesizing unit that synthesizing output signals from the devices to output the synthesized output signal,

wherein each of the devices includes:

a delay regulating unit that regulates a delay amount of the input digital signal;

a digital/analog converting unit that converts the digital signal regulated by the delay regulating unit to an analog signal; and

an amplifying unit that amplifies the analog signal to output the amplified analog signal to the synthesizing unit.

2. The power amplifying apparatus as set forth in claim 1, wherein the delay regulating unit includes a shift register in which the number of stages is variable; and

wherein the delay regulating unit adjusts the number of stages of the shift register to regulate the delay amount of the input digital signal.

3. The power amplifying apparatus as set forth in claim 2, further comprising an input clock control unit that controls a phase of an input clock signal of the digital/analog converting unit of each of the devices.

4. The power amplifying apparatus as set forth in claim 1, wherein the delay regulating unit includes a digital filter; and

wherein the delay regulating unit adjusts a filter coefficient of the digital filter to regulate the delay amount of the input digital signal.

5. A power combining system, comprising:

a distributing unit that divides an input digital signal to a plurality of the input digital signals so as to distribute the input digital signals to a plurality of devices respectively; and

a synthesizing unit that synthesizing output signals from the devices to output the synthesized output signal;

wherein each of the devices includes:

a delay regulating unit that regulates a delay amount of the input digital signal;

a digital/analog converting unit that converts the digital signal regulated by the delay regulating unit to an analog signal; and

an amplifying unit that amplifies the analog signal to output the amplified analog signal to the synthesizing unit,

the power combining system, further comprising:

a measuring unit that acquires at least one of an output power and a frequency characteristic of the synthesized output signal to measure a delay between the devices; and

a control unit that controls the delay regulating unit so as to regulate

the delay amount of the input digital signal based on the measured delay between the devices.

6. A delay measuring method for a power combining system including a plurality of devices, digital input signals being distributed to the devices, and analog output signals from the devices being synthesized to a synthesized output signal, the delay measuring method comprising:

acquiring at least one of an output power and a frequency characteristic of the synthesized output signal; and

measuring a delay between the devices based on the at least one of the output power and the frequency characteristic of the synthesized output signal.